



DEPARTMENT OF PLANNING, INDUSTRY & ENVIRONMENT

BOS Support for Assessors & Local Government

BAM Operational Manual – Stage 3



Penelope Rogers
Senior Project Officer, BAM Operations Team
Department of Planning, Industry & Environment

John Spencer/DPIE



BAM 2020 – Changes to Stage 3

Rosie Nicolai / DPIE

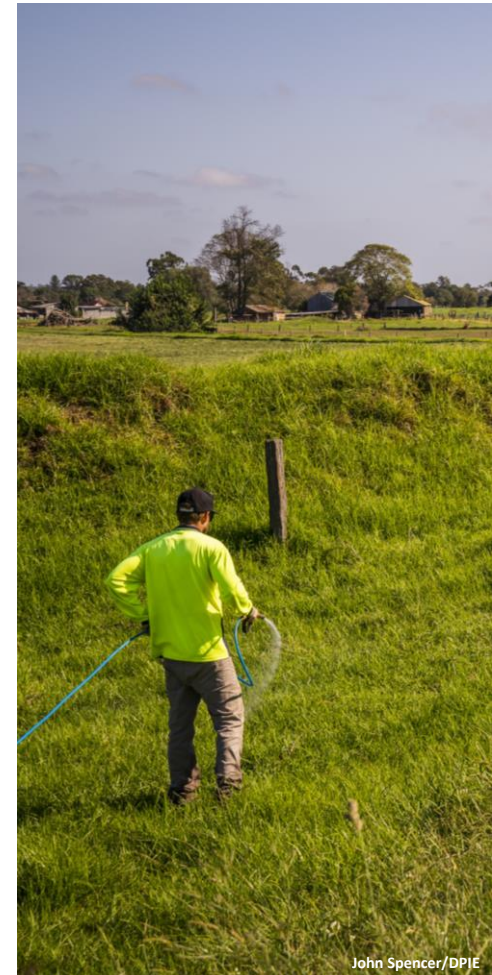


Manageable High Threat Weeds

BAM 2020, paragraph 11.3.2(7.)

Requirements:

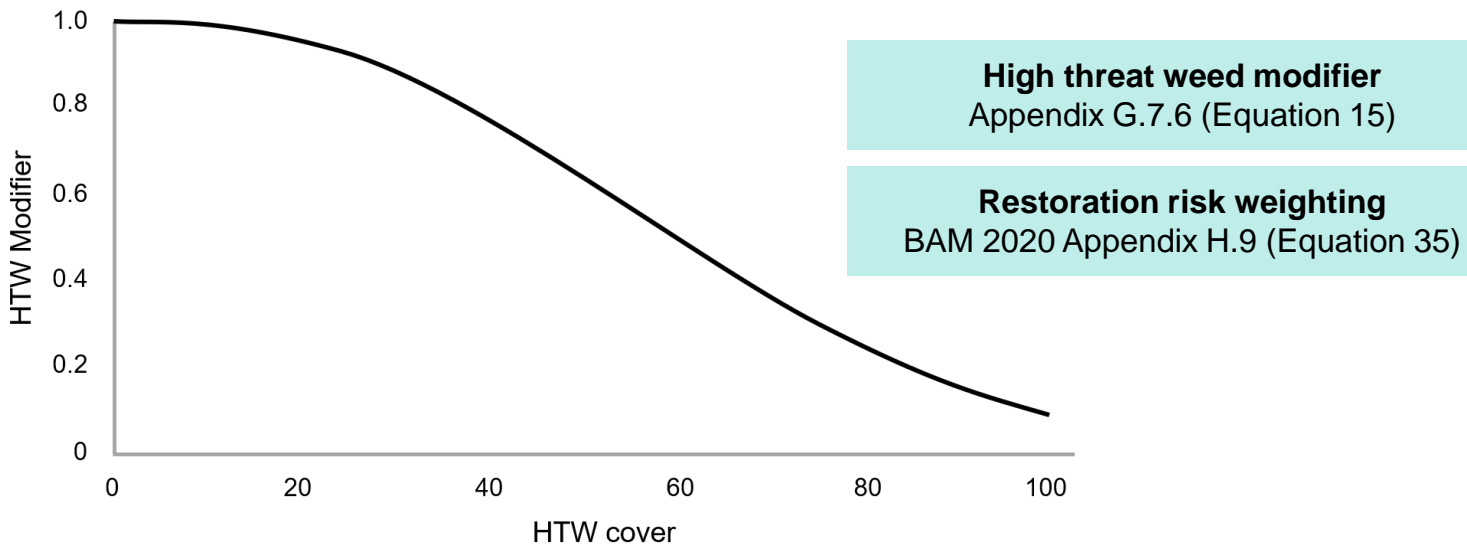
- Commitment to remove manageable HTW from the vegetation zone,
- In the BAM-C, cover is modified only for 'manageable' species on the HTW List,
- Active restoration management actions are proposed to remove and control the manageable HTW,
- Active restoration management actions are costed in the TFD, and
- Appropriate supporting details are documented in the BSSAR and Management Plan.





Removing manageable HTW cover – impact on gain

Removing manageable HTW from a vegetation zone will improve VI gain by modifying the HTW influence on the restoration risk weighting.





Determining HTW cover in a vegetation zone

- Cover must be estimated for each HTW species present within a 400m² survey plot (BAM 2020, paragraph 4.3.4(21.)).
- The average of these values represents the estimated cover for the vegetation zone.

Example: Vegetation Zone A

High Threat Weed	Manageable	Cover % - Current	Cover % - Future
African Olive	Yes	10%	0%
Lantana	Yes	10%	0%
Saffron Thistle	No	20%	20%
		40%	20%

Default HTW cover in BAM-C

Modified HTW cover in BAM-C



Required documentation

BSSAR

- Document the HTW species present in each vegetation zone, including:
 - Current cover.
 - Removed cover.
- Justify:
 - the method and effort to remove and control manageable HTWs.
 - any increases to future VI attributes associated with removing manageable HTWs.

Management Plan

- Document the HTW species present in each vegetation zone, including:
 - Current cover.
 - Removed cover.
- Document methods of weed control and performance measures.





BAM Operational Manual – Stage 3: Key Topics

Joel Stibbard/BCT



Key components – What is their purpose?

BSSAR

- Details the application and outcomes of the BAM.
- Provides justification for how proposed management actions will achieve predicted outcomes.
- Requirements detailed in Table 1 (BAM Operational Manual – Stage 3).
- Template in development.

Management Plan

- Prescribes the management actions, activities and monitoring to be undertaken.
- Both a stand-alone document and included as an appendix to the BSSAR.
- Used in annual site audits.
- Template available on BCT website.
- Guidance in the BAM Operational Manual – Stage 3

Total Fund Deposit (TFD)

- Details the total present value of all costs associated with managing the site in perpetuity.
- Calculated using the TFD Calculator.
- Guide in development.

Ensure consistency between these documents



Required vs. Active Restoration Management Actions

BAM Operational Manual – Stage 3, Appendix B.2

Required management actions (BAM 2020 Table 6)

- Mandatory – targeted at controlling threats to biodiversity.

Active Restoration management actions (BAM 2020 Table 7)

- Optional – may be used to generate additional biodiversity credits.
- Restore missing condition attributes.

Consider:

- If a required management action must be implemented first.
- The size of the investment (time and resources).
- The level of expertise required to plan and implement.
- The potential risks and constraints.

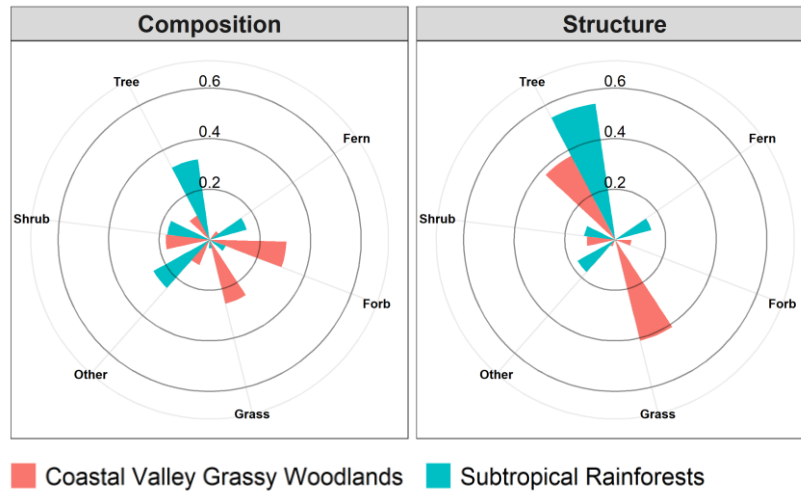




When is active restoration appropriate?

BAM Operational Manual – Stage 3, Appendix B.1.1

- BAM Stage 1 assessment – which vegetation zones will benefit most?
- Dynamic weightings – which growth form groups will benefit most?





Active Restoration – risks and constraints

BAM Operational Manual – Stage 3, Table 3

Constraint	Example
Topographical	<ul style="list-style-type: none"> Is it too steep for proposed actions?
Biophysical	<ul style="list-style-type: none"> What is the soil surface condition? (e.g. soil compaction)
Restoration Methods	<ul style="list-style-type: none"> Are proposed active restoration actions (e.g. creation of ponds or other artificial habitats) suitably matched to prevailing site conditions?
Restoration capacity	<ul style="list-style-type: none"> Is the required infrastructure available to plan, manage and complete these works (e.g. seed and/or tube stock supply)?
Biological resources	<ul style="list-style-type: none"> Is the quantum of seed or plants (for each species) required for the scale of restoration and proposed restoration method available (physically and within budget)?
Post-restoration management	<ul style="list-style-type: none"> Are detailed post-establishment management actions included in the management plan? (e.g. managing fire and flood risk)?
Financial resources	<ul style="list-style-type: none"> Where there is uncertainty of outcome, has an appropriate contingency (collated with the uncertainty) been included in the total fund deposit (TFD) calculator?
Monitoring	<ul style="list-style-type: none"> Has the assessor developed (and costed) an appropriate monitoring plan for the restoration?



Performance Measures vs. Ecological Response Targets

BAM Operational Manual – Stage 3, Section 2.7.3 and Appendix C

Performance Measures

- Outputs directly related to successful implementation of management actions.
- Audited by the BCT against the management plan in annual reviews.
- Example: target survival rate of tube stock in a management zone
- Documented: Management Plan (against each management actions).
- The BSSAR must include justification for the:
 - Performance measure or ‘metric’
 - target for each management action
 - method of the monitoring design.

Ecological Response Targets

- Biodiversity outcomes expected to occur in response to management actions.
- Example: improvement in VI attribute scores.
- Documented: Management Plan (Monitoring Plan sub-section)
- Monitoring plan must include:
 - measure or ‘metric’ of response
 - five-year interim targets (i.e. at 5, 10, 15 years)
 - long-term target (i.e. 20 years)
 - all biodiversity values for which credits have been generated
 - layout (including any stratification of units).



Important Resources

- BAM Operational Manual – Stage 3
 - Available via [Assessor Resources](#)
- BAM Survey guides
 - Available via [Assessor Resources](#)
- BOS Support Webinars
 - [How does the BAM gain model apply at a biodiversity stewardship site?](#)
 - [Vegetation Integrity and Vegetation Condition Benchmarks](#)
- BCT Publications (available on the [BCT website](#)):
 - Management Plan template
 - BCT Ecological Monitoring Module & Operational Manual
 - Management guidelines for landholders





DEPARTMENT OF PLANNING, INDUSTRY & ENVIRONMENT

BOS Support for Assessors & Local Government

BCT Ecological Monitoring Module (EMM)



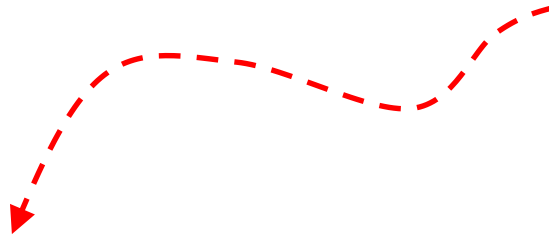
James Brazill-Boast
Principal Ecologist, Agreements & Technical
Services, Biodiversity Conservation Trust

Thursday 25th February 2021, 11:00 AM – 12:00 PM



BAM 2020:

*“Monitoring to adequately assess outcomes against all performance measures...[and] to specifically assess change in threatened species abundance, occupancy or habitat...designed and implemented in accordance with Biodiversity Conservation Trust **guidance documents**”*



EMM Operational Manual – published February 2021

Provides detailed guidance on implementing the EMM and minimum requirements for monitoring biodiversity response at new Biodiversity Stewardship Sites



Key Objectives of the EMM

- Data for evaluation and reporting – site and program scales
- Assess management effectiveness
- Test assumptions about biodiversity gain
- Inform adaptive improvement
- Data for wide consumption



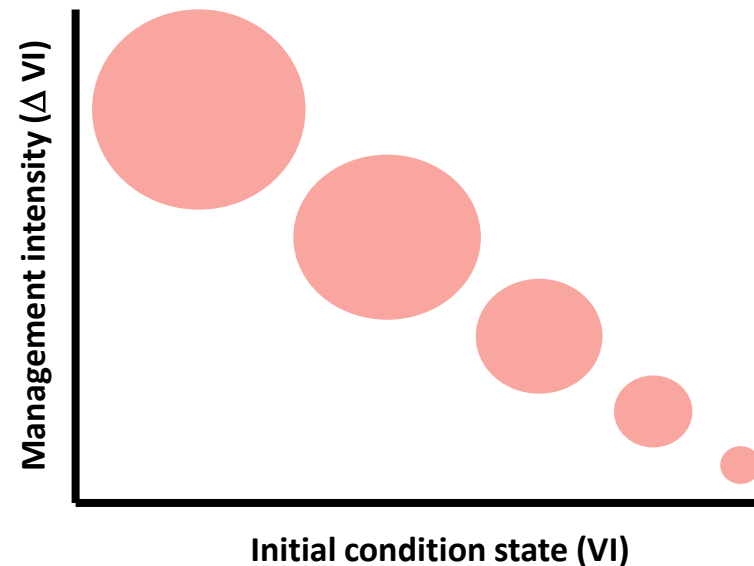
Photos: Joel Stibbard/BCT



Conceptual framework

Horses for courses: fit-for-purpose monitoring, intensity/methods dependent on risk of suboptimal biodiversity outcome, i.e:

Management objective	What change (improvement) are we hoping to see in response to management?
Uncertainty	How much evidence is there for the effectiveness of a particular management action?
Additional values	For what kinds of biodiversity values are vegetation integrity plots not a good indicator?



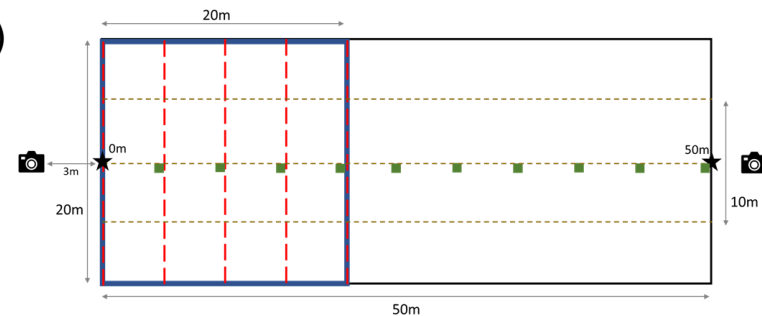


Monitoring methods

- Centred around BAM vegetation integrity survey, with additions/amendments applicable to some scenarios, as required:
 - Full floristic (i.e. cover + abundance by species) 20x20m plots
 - Tree stem counts x species x size class
 - Point-intercept cover assessment
 - Soil surface condition assessment (LFA)
 - Targeted species credit monitoring



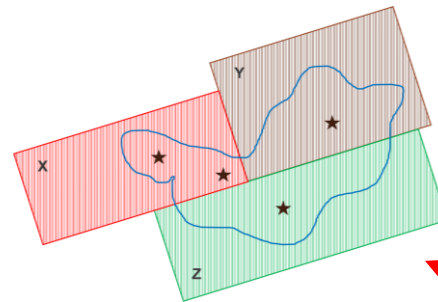
Photo: Joel Stibbard/BCT





EMM Operational Manual
provides recipe for developing
a site monitoring plan

Category	Floristics (20x20m)		Function assessments (20x50m)			Dung counts
	Type	Density	Tree stems	Point-intercept cover	Soil	
A	FF	H	all plots	WM; EB; MG	MG; EB	MG; NH
B	FF	M	n/a	n/a	n/a	MG; NH
C	FF	L	n/a	n/a	n/a	n/a



Vegetation zone area (ha)	Plots / zone		
	High	Moderate	Low
<2	1	0	0
>2-5	2	1	1
>5-20	3	1	1
>20-50	4	2	1
>50-100	5	3	2
>100-250	6	4	3
>250	7	5	4



Threatened species monitoring

- All species credit species require targeted monitoring
- Objective-driven (e.g. demonstrate continued occupancy)
- Species-specific guidance available
- ARMA – demonstrate colonisation / habitat use





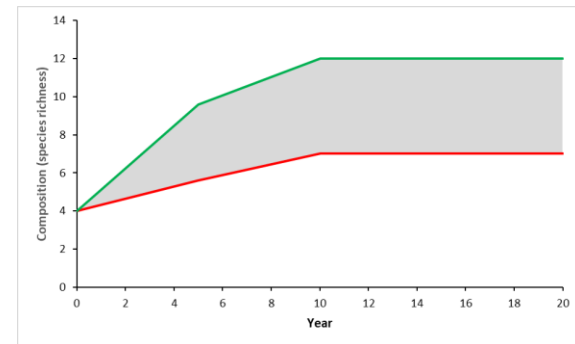
Active restoration targets

Upper target: on track to meet benchmark* and eligibility for additional credit generation at Year 20

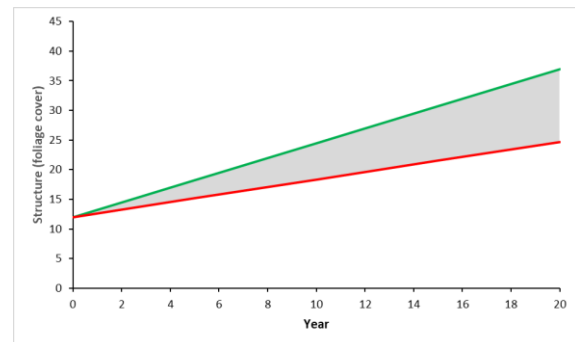
Lower target: on track to meet minimum gain generating credits

Zone structure data			
Structure condition score: 55.7			
Item	Tree	Shrub	Grass & grass like
Benchmark	52	18	61
Current value	15	2	20
Future value with offset	16.6	2.2	22
Future value with active restoration gain	50	15	61
Final Risk Weighting	0.3	0.29	0.29
Future value with offset (After Restoration)	26.6	5.9	33.2

Composition: 80% of gain in first 5 years



Structure: linear increase



22

* Or manually-adjusted value



Data collection and management

- All monitoring data expected to be provided to the BCT – ideally via BCT tools (when ready)
- Intention to minimise additional reporting load (no analysis required)

A screenshot of a mobile application form titled "Establish Monitoring Point - Beta Form". The form is displayed on a green background with a white border. It contains the following sections:

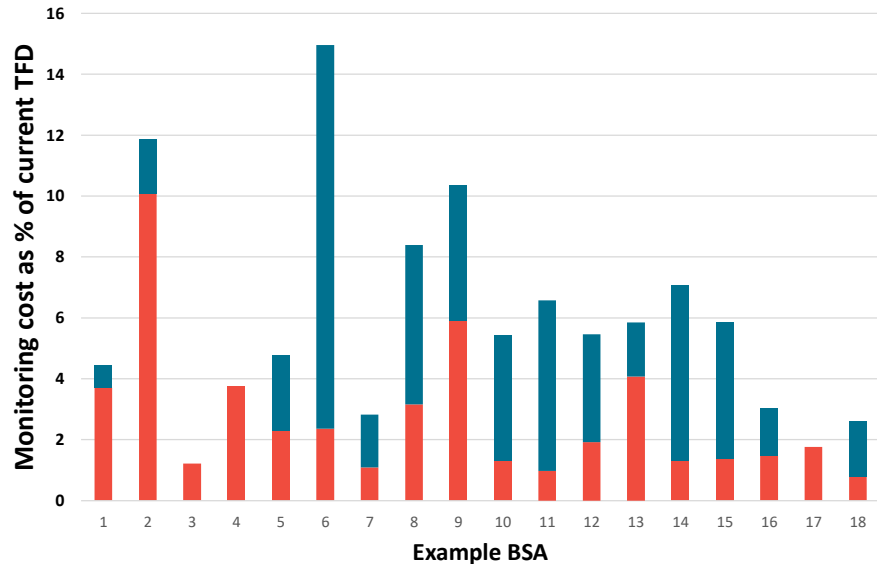
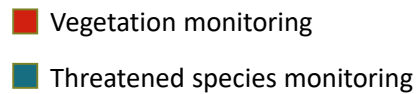
- Monitoring Point ID**: MA201016_110804
- Point attributes**:
 - Monitoring point type ***: Radio buttons for "Agreement" (selected) and "Control".
 - Agreement number ***: Text input field containing "CA0123".
 - Date established ***: Date picker showing "Friday, 16 October 2020".
 - Location ***: Location input field showing "33.641°S 151.096°E".
 - A small photograph of a field with a red marker in the ground.
- Vegetation**:
 - Formation ***: Dropdown menu showing "Shrub/grass".
 - Vegetation Class ***: Dropdown menu showing "phyll Forests".
- Form links**: A link labeled "Open new BAM Form".

A green checkmark is visible in the bottom right corner of the form.



Costing monitoring

- Monitoring included in TFD alongside management actions
- BCT open to negotiating more cost-effective approach if/where appropriate
- Tested in the real world





Operationalising the EMM for BSAs

- Monitoring plans and associated TFD in alignment with the EMM will be required for all BSA application submitted after **1 March 2021**
- Accredited Assessors currently developing BSA applications are encouraged to contact the BCT for support in developing monitoring plans
- A field methods training day is being organised for March/April – more information to follow



Photo: Joel Stibbard/BCT